

Hobbies

WEEKLY

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MODEL TRAM DESIGN SHEET	

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MAKING A MODERN TELEPHONE TABLE

PRIMARILY this useful and novel table for telephone, small radio or similar fitment was designed with the idea of incorporating a tipping drawer as a wastepaper basket which was completely hidden when not actually required. As a table for the telephone, however, the main use for the drawer has been to accommodate directories—the ideal and obvious place for them!

Construction is quite straightforward. Top and bottom are identical in size, 15ins. by 9ins. cut from $\frac{1}{2}$ in. material. The two side pieces are cut from $\frac{1}{2}$ in. ply, one side purely rectangular in shape 16 $\frac{1}{2}$ ins. by 7 $\frac{1}{2}$ ins., the other the same length but tapering from 6ins. to 3 $\frac{1}{2}$ ins. This taper cut is to give clearance for the drawer in the tipped position, so it can be removed from the assembly by sliding out sideways.

Base, top and side pieces are erected

first, making sure that the assembly is square. Triangular bracing blocks are used inside at the top and outside at the bottom, joints being glued and also screwed or nailed. A facing piece of 1in. by $\frac{1}{2}$ in. material, 15ins. long is secured under one long edge of the top, as shown.

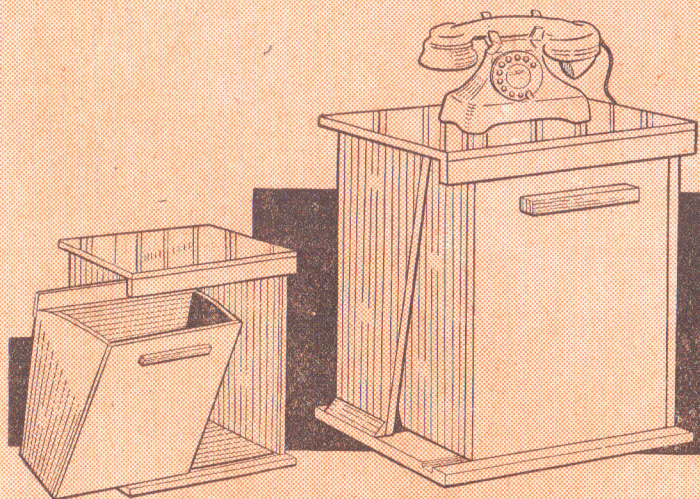
The Tipping Drawer

Construction of the tipping drawer is shown in a separate sketch, where all relevant dimensions are given. Suggested material thickness is $\frac{3}{8}$ in., with plain butt joints at the corners again reinforced with triangular stock. Small screws or nails should again be used as well as glue.

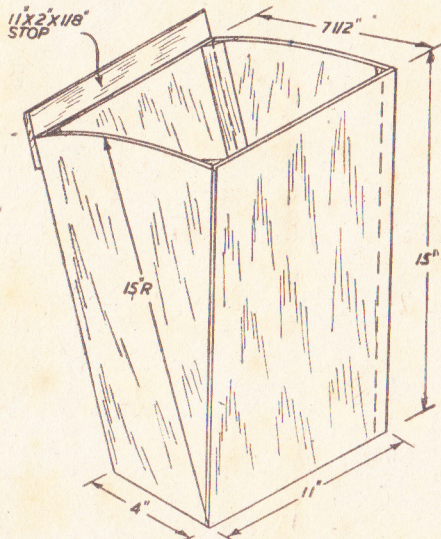
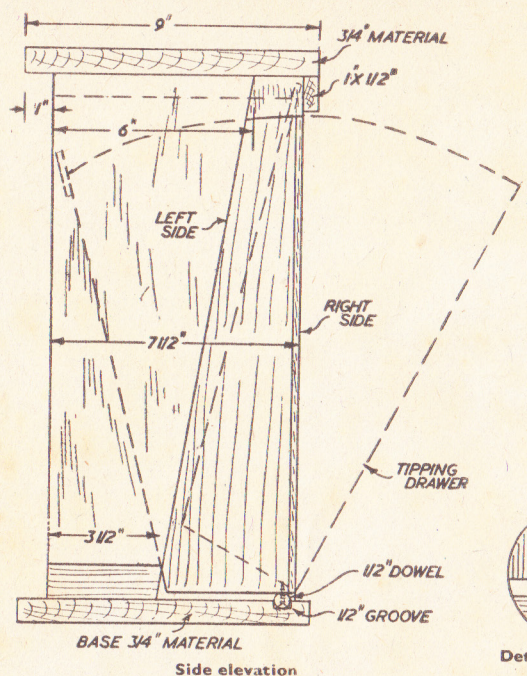
A 2in. strip of material is secured to the top of the sloping back of the drawer to act as a stop. This, by striking the 1in. by $\frac{1}{2}$ in. strip under the top of the table prevents the drawer being pulled out or tipped too far.

To the bottom of the drawer, close up to the vertical face, is screwed a length of $\frac{1}{2}$ in. dowel. A $\frac{1}{2}$ in. groove, $\frac{1}{2}$ in. deep is cut in the base to accommodate this dowel, as shown. The drawer rocks about this point—the dowel resting in the base groove. Normally its own weight is sufficient to hold it closed.

A drawer pull or a simple rectangular block of wood is attached to the vertical face of the drawer as a grip for tilting. Tilted forward to its fullest extent the

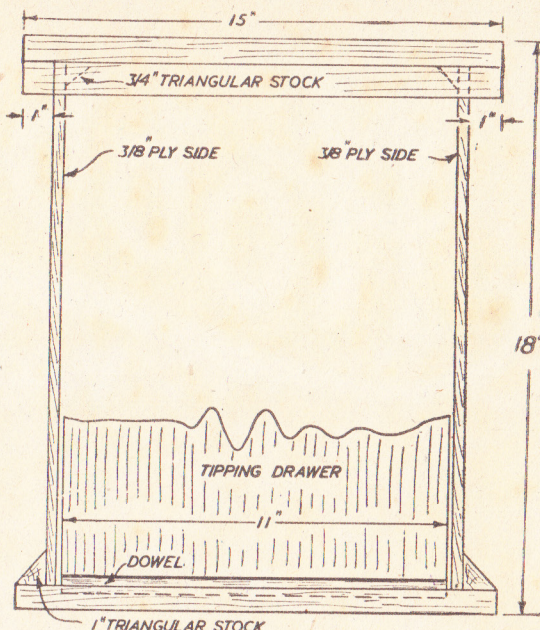
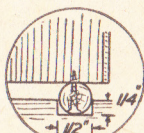


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rear face of the drawer comes in front of the taper edge of the left hand side and the drawer can be removed entirely by sliding out.

Drawer and table can be finished according to taste, painted or stained and polished. Instead of a polished top, a fitted mirror or plain glass top adds greatly to the attractiveness of the finished article.



Where the tipping drawer is to be used purely as a waste-paper holder, there is one suggested modification to the design which can be incorporated. Space is not now of such importance and the bottom of the drawer can be brought to a point. In other words, the drawer can be

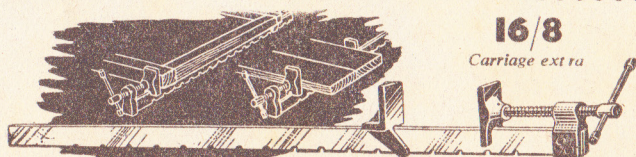
laid out so that the sloping face joins the vertical face at the point, this also being the attachment point for the dowel.

Only a very small clearance is then needed to slide clear and so the left hand side can be made 7ins. wide and untapered. This is largely a matter of taste. (370)

A London Man's Queer Hobby

A LONDON man, Mr. G. C. Nash, has a hobby that is both satisfying and quite inexpensive. He collects the catalogues of the kind that are sent out gratis by commercial firms of all kinds. Over the many years he has been collecting, Mr. Nash has built up an amazing array of free catalogues describing every kind of goods and merchandise. Some are dull lists and brochures, some highly-coloured leaflets, others are well-produced booklets, and a few are even beautifully bound and illustrated books. Pride of place in Mr. Nash's collection goes to catalogues that offer queer merchandise of a type not usually found in shops, and those whose make-up is done artistically and attractively. Es-

pecially interesting are the detailed catalogues of firms who supply magicians and conjurors with all their props and trick apparatus, and also the lurid seed catalogues with over-optimistic pictures and descriptions of flowers and vegetables that are claimed to result if the seeds are sown. Catalogues are offered all over the world almost daily, yet it is surprising how rare the hobby of collecting specimen ones is. Mr. Nash's collection is unique. One of the biggest catalogues comes every year from a large American mail-order firm: it weighs about 4lbs., is a thick, bound book illustrating almost every kind of tool and household appliance, and is sent free to hundreds of thousands of homes in the U.S.A. (280)

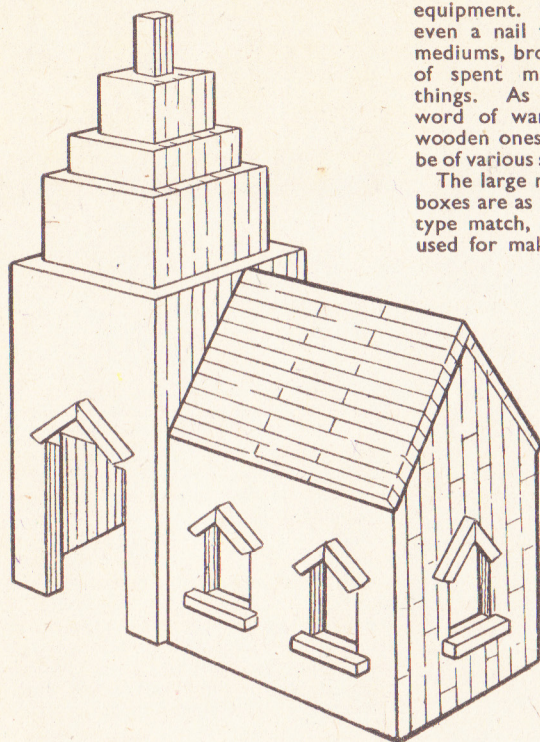


STRONG STEEL BAR CRAMPS

A strong well-made tool for the carpenter and handyman. Takes work up to 36ins. long. Easily adjusted to varying lengths as a sash cramp or for wide boards. Strong steel bar with square edges for rigidity.

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You can spend many interesting hours MODELLING WITH MATCHES



equipment. A pen knife, a small file, even a nail file, glue or tube sticking mediums, brown paper, and a great pile of spent matches, are the essential things. As for the spent matches, a word of warning. They must be all wooden ones, of course, and they must be of various sizes.

The large matches which fit into large boxes are as necessary as the usual small type match, for the larger matches are used for making beams, principals, and other things for the inside of models such as buildings. Indeed, they can form the frames round which the other things are built. It must be obvious that instead of matches, small pieces of wood can be used for this framework, but that is but defeating the whole idea of this type of modelling. One might as well use clay or plasticine for modelling a steel engine. The end might look all right, but the true modeller would look askance at such a composite affair.

Things to Know

There are a few things to be understood in this type of work, just as there are about other things. The matches to be used for joins have to be cut into 'joints'. That is half or less of the ends of the matches are cut away so that they fit together exactly as the join in a cabinet. Then some match ends must be pared away so that they can fit into holes bored into other matches. Especially does this apply to the larger ones which are used for holding the rest in place.

Like every other type of model known to man, to work in this field, it is better to start with a small ambition and work up. Indeed, I know one man who has made wonderful models in this field who started years ago by making doll's furniture for his child. With the aid of spent matches, he made small chairs, beds, tables, suites of furniture for the doll's house. They were so small that few would care to inspect them so closely.

But after he had made progress, then the first set were thought to be unworthy and a later set, built to scale, with many points about them incredible to those who do not know how, are a source of deep astonishment to the casual inspection.

What types of models are possible in this type of work? There is no limit. You can get any model in this issue, and with spent matches make it. Indeed, this is one of the advantages.

Buildings are Best

Scale drawings of anything in this number, of engines, aeroplanes or other things can become for you, the drawing by which you work. The only thing is that you must substitute matches for tin, steel, brass or metals of other kinds. The best things for this type of modelling, however, are well known buildings. If you live near Westminster Abbey or St. Paul's Cathedral, The Houses of Parliament, you can make models of these. If you run to lighthouses you can make a whole collection of them. If you are in the west country there are many things there. The various cathedrals, many a town hall, or in the Midlands, the cottage of Anne Hathaway, Shakespeare's birthplace, the Memorial Theatre, are suitable subjects.

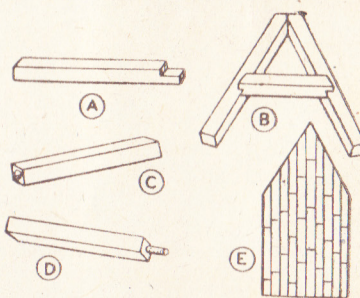
You see, the match modeller is also something of a collector. He makes a model of this, perfects it, then looks round for fresh fields to conquer. In his room he has his models which are a source of enjoyment to his friends and family as to himself. Why? Why should such models be capable of giving more enjoyment than other types? For this simple reason, that most models, engines, ships, aeroplanes, racing cars, are working models which are seldom effective when not used for one's self.

TO the unknowing to model anything from matches might sound the height of foolishness. Not live matches, of course, but spent ones. Yet, to those who realise, here is a field wide enough for the beginner and the expert to work in. Nor is this type of modelling just for the one field alone. The modeller who makes an engine, generally sticks to that type of model all his life. Another whose hobby is aeroplane modelling often does nothing else. With spent match modelling one can work in any field.

The Possibilities

Aeroplanes to scale, engines to correct proportions, ships or canoes, are all possibilities for the spent match worker. Not that these are the best things for such an enthusiast to tackle. Being a wood medium, the best results seem to be obtained by modelling buildings and similar things, but just as the one who models engines loves to have them to scale, indeed, must have them to scale to obtain the most satisfaction, so must the one who makes his models with spent matches.

In this field of modelling one need not have expensive tools. If such can be afforded, all the better. They are for those with the cash. But the youth with limited pocket money can do work quite as thrilling, just as enthralling, as the one who works with expensive



Principles of construction. A—End joints. B—Usual construction for a roof, and for the side or end of a building. C—The tiny hole in the end of a match into which the dowel on D can be fitted. E—Method of fitting matches in sections

So match models do not work? Indeed they do! One does not mean that match models of ships will sail. They might but that is doubtful. One is not asserting that match engines will run. That is asking too much. Such match models are but the forerunners of the later working models to be made. No! No! The working models which are made from spent matches are of quite a different type. Westminster Abbey, for instance. What is that? How in the name of all that is wonderful, can one make a working model of Westminster Abbey?

Just as with Liverpool, Exeter, Truro,

(Continued foot of page 388)

The children will be thrilled by these EASTER NOVELTIES

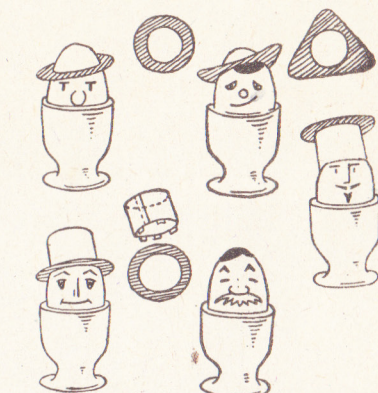
HERE are a few suggestions for novelties for the children at Easter. They are easily and quickly made and will provide some good fun. The novelties include Mr. Cockerel and Mrs. Hen, and as many baby chickens as one cares to make. Amusement at breakfast time is provided by putting features on real eggs and making little hats for them.

The chicken family are all made the same way, so a description of the

cockerel will suffice for all. Sketch on stiff paper or thin card, the shape of the two sides of the chicken with the base in between, as shown in the illustration. Cut round the complete outline. By bending up and right over at lines (AA) and (BB), and by bending lines (CC) and (DD) so that the two sides of the chicken coincide, a base is formed, the lines (CC) and (DD) meeting at (XX). Cover the whole inner surface with seccotine, stick the two sides together and press down the base. If desired, a thicker piece of card can be stuck under the base to make a firmer stand. When set, a coat of paint is added. This should be kept simple. Poster paint is good as it is opaque and obtainable in very bright colours. It can also be used almost dry. Too much water will tend to make the surface cockle.

The real eggs for the Easter breakfast can be decorated with faces. For this, pencil, crayon or indian ink can be used. Water colour will wash off when the eggs are boiled.

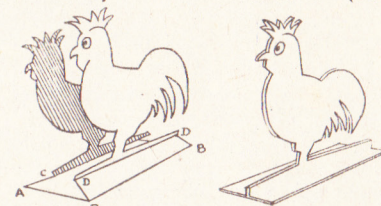
Hats can be added quite simply. A circle of stiff paper, cut to fit over the top of the egg, will make a brim. Add a short tube, the same circumference as the inner circle of the brim, and a top hat is obtained. Stick the tube to the brim by means of the ties. Turn the



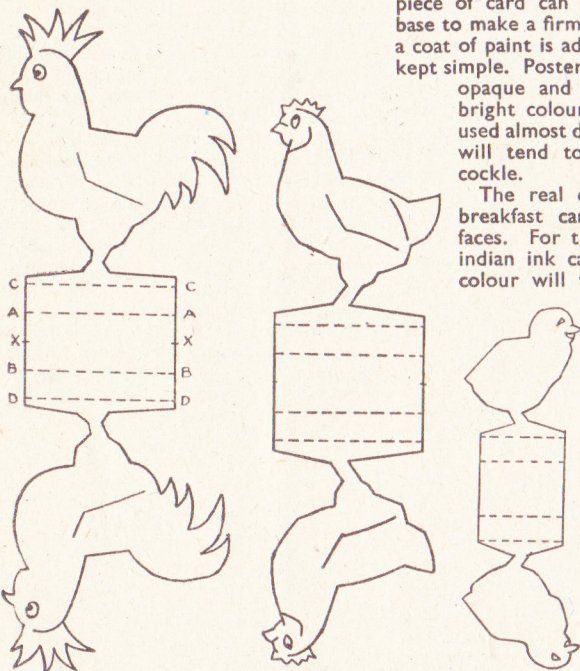
These sketches give some ideas for decorating real eggs—complete with hats

top hat upside down and the result is a chef's hat. Cut out a triangular piece and curl up the straight edges and a period hat is obtained.

All kinds of ideas crop up in the making, which add to the fun. A frilled collar could be set between the egg and the egg cup. Two paper legs could be made to hang over the edge of the cup in front, like Humpty Dumpty on the wall—and, no doubt, the children themselves will think out a few more ideas to try out at a later date. (405)



The method of folding and sticking the chickens. For added strength a thicker piece of card can be stuck under the base



Simple cut-outs for the cockerel, hen and baby chick

Modelling with Matches—(Continued from page 387)

Norwich or Chester Cathedrals. Such buildings are the ideal in this field. The buildings are marked out to whatever scale the modeller desires. This can be done by first buying a photograph of the building desired, and by laying the paper flat on the modelling table, fill it with matches stuck to the portion of the photograph chosen. When these are glued down, the part is turned over and the same process repeated, except, it ought to be remembered that the model will be stronger if the matches are reversed, that is, glue your matches

upright on the outside, and horizontally inside. But such buildings require windows, and here the modeller can give vent to his ambition.

He should make such windows of glass, stained glass pieces are often readily obtainable from many sources. He can fix lighting inside with tiny bulbs here and there, even to the lighting in scale of special lighting sets in such buildings. And, of course, as our Cathedrals have services and choirs, by modelling the choir entering in procession, dressed to the part, the Clergy, and Bishop following, by the aid of a small pick-up from the radiogram a hymn record such as 'Onward Christian Soldiers' or Christmas, or Easter hymns, lends a touch of realism to such models, which in this sense 'work' as much as does a car or an engine with something, which is missing from the latter working models.

Nor is this type of modelling wholly a

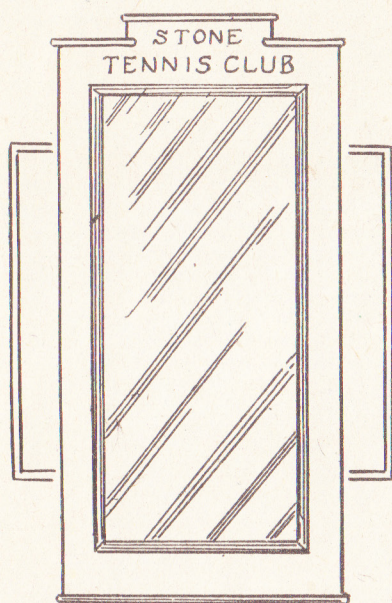
dead loss. If one is money minded, a profit can be gained. Many a local Parish Church will gladly engage such a working model for sales of work, exhibitions, and other affairs, either at a fee or on a percentage basis. I know one man with a match model of Strasbourg Cathedral who has made a few hundred pounds in this way from Roman Catholic Churches.

Strangely enough the general public assume that match modelling is harder, infinitely harder than other modelling, whereas it only requires greater patience. Once you get the idea of putting your matches both sides of the photograph parts, and the joints, which are the usual wood joints on a tiny scale, there is no reason why you should not only have a field of great pleasure to work in, but a field to bring good cash return. As was said at the beginning, Make it with Matches. We feel sure you will never regret it if you do. (381)

SILVER POLISH

A good polish for silver is to mix a few crystals of sodium thiosulphate in as little water as possible, so that you have a strong solution. Rub the tarnished silver with it, and the stain is easily removed.

Incite more competition by making a CLUB CHAMPIONSHIP BOARD



PROBABLY the best method of inciting club competition is to inscribe the names of the annual champions on a framed board for all to see and emulate if possible. This, I believe, is already done by many clubs, and proves highly productive of good play. A very simple design of board will suffice, and most clubs can find a wood-working member able to make one.

The design given to head this article would look quite well made in oak, or if that is not obtainable, deal would serve well enough, as the design shows practically no awkward end grain. It could be enamelled or painted, and need present no difficulty to make.

Fig. 1 shows the parts of the frame; wood $\frac{3}{4}$ in. thick being recommended, to make a substantial article. The dimensions given, especially the width, can, of course, be amended if thought desirable, to suit the club's requirements. The corner joints are of mortise and tenon kind, the tenons being shouldered, and entering the sides about 1 in., not right through, as in

detail (A) in Fig. 2. Make the joints a close fit, and well glued.

At the top and bottom, strips of $\frac{1}{2}$ in. wood are glued and pinned along. These overhang the front by $\frac{1}{4}$ in., also the ends. The outer pieces on the top should be cut away $\frac{1}{2}$ in. where they join the centre wider part, so that they extend that distance across at each inner end. This is explained at (B) Fig. 2, and will be noticed in the view of the completed board.

Providing a Rebate

To provide a rebate for the glass and backboard, a few feet of moulding of the type shown at (C) can be mitred round the opening. This particular moulding is suggested on account not only of its suitability for the job, but its neat appearance. Rebated moulding of this type, however, sometimes puzzles the amateur how to estimate the correct lengths for accurate fitting.

A simple method is to cut off a 1 in. length of the moulding, place over the edge of the opening, as at (F) in Fig. 3, and slide it along the whole four sides, keeping a pencil pressed against its outer edge. This will give the exact length of each of the four pieces, and ensure their correct lengths for mitring the corners.

Next Best Thing

If the moulding mentioned is not obtainable, the next best thing is to plane up a few feet of quarter-round moulding, $\frac{3}{8}$ in. section, as at (D) or you may be able to purchase a few feet already prepared, and save trouble. This should be mitred round, as in sectional detail (E), letting it stand slightly above the surface to break the monotony of flatness.

A sheet of stout glass should now be provided, also a backboard. This latter part should be moderately stout, say, $\frac{3}{4}$ in. or $\frac{1}{2}$ in. plywood. Cut it to fit the rebate, and to keep it in place, and the same time ensure its easy removal for adding fresh names to the championship list, a few metal clips should be fitted. These can usually be bought or just as easily cut from sheet metal, making them about 1 in. long and $\frac{3}{8}$ in. wide, with a hole drilled at the wide end for fixing with screws.

Place glass and board in position, and at the spots where the clips are considered necessary, chisel out curved recesses, as at (G) Fig. 3, for them to lie in, and just deep enough for the clips to press firmly enough on the backboard, and keep it in place. Be sure the recesses are long enough to allow the clips to swing clear of the board. For a board of the dimensions given in this article, six such clips may be sufficient, one at top and bottom, and two each side.

Finishing

If the board is of oak, it could well be left plain, after glasspapering, of course; staining and varnishing it is just a matter of choice. A deal board could be painted, but a glossy surface, such as can be obtained by enamelling, is much to be preferred. A final coat of good quality hard gloss paint can also be recommended, but for this a suitable undercoat is necessary to give solidity or body to the colour.

A sheet of quality white cardboard or paper will be needed, on which the names of the champions can be inscribed. This can be backed with a sheet or two of common newspaper before the backboard is placed over it. A brass glass plate should also be screwed to the top of the frame for hanging it to the wall.

In fact a second glass plate, this time at the bottom of the frame, would not be amiss, as it would prevent it being pushed to one side should anyone press up against it.

Take Care with the Name

Complete the board by having the name of the club neatly inscribed at the top, and if no member is sufficiently versed in the art of sign writing to do the job, well do not spoil the ship for a ha'p'orth of tar with a botched job, but have it done professionally, the trifling expense being more than worth it.

No cutting list is really necessary for this article, as adhering to the dimensions given, a 30 in. length of $\frac{3}{4}$ in. thick board will provide the materials for the frame, plus 7 ft. of moulding, and a panel of plywood for the back measuring 10 ins. by 26 ins. (393)

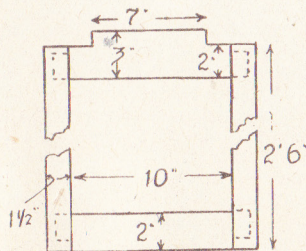


Fig. 1—Parts of the frame

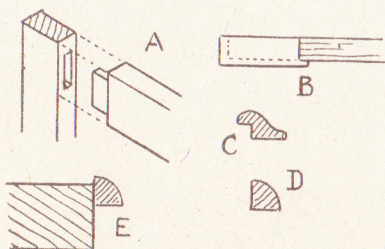


Fig. 2—Details of joints and moulding

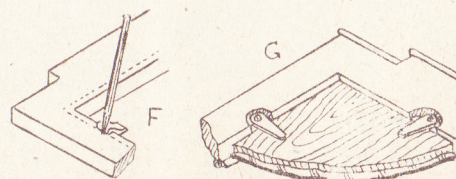


Fig. 3—Fixing the back

Cheap to make and to run is this ALARM CLOCK DOOR BELL

THE reader who is attracted to novel forms of door bells should find the subject of this article interesting. It works entirely off its own power and is not dependent on an electric supply of some sort. Its construction does not call for much skill, and it has the added advantage that the cost can be very small or it may be made from the scrap box for nothing.

If made carefully from good materials it will prove a very efficient piece of apparatus and be equal to some of the best door bells on the market.

The Mechanism

The main mechanism consists of the alarm side of an old drum alarm clock. In the majority of cases when an alarm clock fails to function as such it will be found that the breakdown is on the going side of the clock. This part of the clock is ticking away all day and soon wears out, whereas the alarm is only called on to work once during the day.

It should not be much trouble to get an old alarm clock movement. There are probably few households that have not at least one lying around somewhere that has seen better days. If not, a watchmaker would be glad to get rid of one, in many cases just for the asking, or if a charge was made it should not be much.

The sketch shows a good example of an old type alarm movement with a medium size bell—the larger this is the better. You might even be able to get one having two bells, and would fit into our scheme quite well.

Having got the clock, take it out of the case, remove the hands and the dial. Then take the movement to pieces, and at this point it would be a good idea to clean the parts that are wanted with either petrol or paraffin oil. These will include the two plates, alarm main wheel with mainspring, inter scape wheel and pallets with hammer.

In some alarm clocks there is an extra wheel between the main and scape wheels which allows the alarm to run for a much longer time with one winding. Now put the parts together and tighten up the nuts.

On the plate nearest to the dial will be found a steel strip spring, the end of which engages with the hammer tail wire. This is not wanted and can be either removed or bent back so as to be out of the way of the hammer wire.

Different Spring

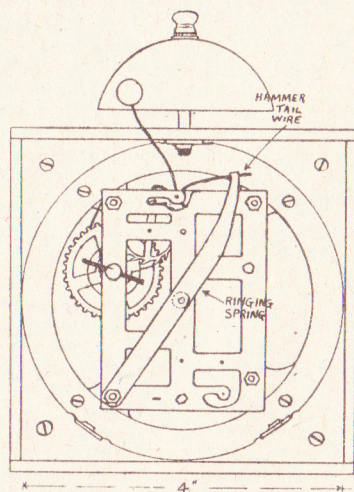
Instead of this spring we shall have to make another of similar type to fix on to the back plate, as shown in the sketch, and we will call this the ringing spring. It can be made from a strip of springy brass or a piece of the broken spring from the going side of the clock. Drill a hole in one end for fastening to the

plate with one of the nuts, and the other end is bent over so as to make contact with the hammer tail wire. This keeps the bell from ringing until the button is pressed.

Make sure that this spring passes over the hole in the plates, as this is where the press button rod is fixed. Open out both holes to take a length of brass or steel rod—a knitting needle would answer for this.

On one end of the wire solder a small washer or nut to prevent it from slipping out and also to allow a larger bearing surface on the spring. The other end of the wire has the press button attached to it, but we must wait until the movement has been fixed to the door before cutting it to length.

Next the movement is screwed on to a block of wood about 4ins. square and $\frac{1}{2}$ in. thick—the actual sizes will depend on the clock used. The block should be



These drawings show clearly the layout and construction

slightly larger than the dial plate of the clock, while the size of the bell will determine the thickness. It is only necessary to keep the bell clear of the door.

Drill a hole in the centre of the block large enough for the press rod to slide through—it does not matter how large it is. Now drill three or four holes in the dial plate and screw it to the block; also drill four holes in the corners of the block and countersink them for fixing to the door.

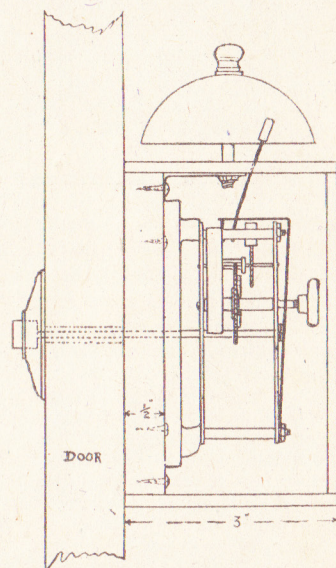
We can now make a light casing to fit

round the movement to keep the dust out and make it look neat and attractive. Quite thin wood can be used for this purpose, anything between $\frac{1}{4}$ in. and $\frac{1}{2}$ in. will do nicely and it can be plywood for added strength if desired.

Cutting the Sides

Cut the two sides to just fit the block of wood, while the top and bottom pieces will be a little larger so as to overlap. The width of the case is shown in the sketch as 3ins. but the actual size will depend on the type of clock used. Allow just enough room for the winding key to turn easily.

Glue and pin the pieces firmly to the block; corner pieces can be used to strengthen if thought necessary. Glue a



narrow fillet of wood round the inside of the case near to the back and make a door to fit.

The movement and case can now be screwed to the door, but before doing so, drill a hole to take the press wire. An old electric bell press button was used, the spring being removed, a small hole drilled through the casing and then fastened to the door over the hole already drilled there.

Drill the back of the press button to take the wire. Make it so that it is a tight fit and has to be pressed on. The length of the wire must be adjusted so that when the button is pressed in, it just releases the tail of the ringing spring from the hammer tail wire and allows the alarm to run.

The woodwork can be stained or painted to match the existing woodwork of the door. Give all moving parts a spot of oil, and finally do not forget to wind up the spring each day. (396)

BURNS AND SCORCH MARKS

To remove burns or scorch marks from a cloth, rub with half an onion till the mark disappears.

You will enjoy making this HANDPAINTED FIRESCREEN

A HANDPAINTED glass firescreen is an attractive addition to any room. The firescreen illustrated in the accompanying diagrams is easy and inexpensive to make because the main part of the framework consists of an old picture frame.

There is no need to fight shy of this particular how-to-make because you happen to be an indifferent artist. The colourful galleon design, shown in Fig. 1, can easily be enlarged to the size required by ruling out a squared grid on to a large sheet of paper and then carefully copying in each section of the outline.

Trick of the Trade

As to the actual handpainting of this galleon motif on a pane of glass. Well, between ourselves, there is a little trick-of-the-trade that will make the job no more difficult than colouring the printed design in one of your children's painting-books.

First, scout around the home and see if you can unearth an old picture-frame of suitable dimensions to mask the

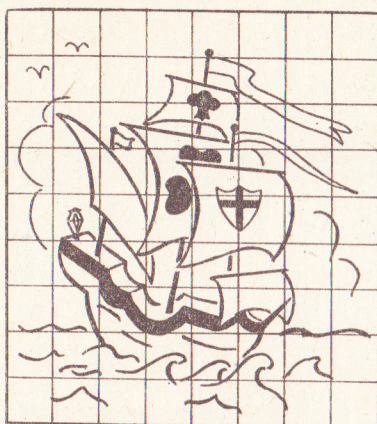


Fig. 1—The galleon design

frame and to cut a completely new side to take its place.

Either copy the curved outline of the top, shown in Fig. 2, or design a suitable ornamentation for yourself. Cut round the outline with coping-saw or bow-saw and clean up with spokeshave or file and glasspaper. Drill three holes for the finger-grip and either file or chisel to the finished shape.

If you intend to stain and polish the firescreen you must choose timber for the new top that will match the existing woodwork. This question of matching will not apply if you are going to have a painted finish. It is a simple matter to camouflage different types of wood under a coat or two of paint.

Fig. 3 shows two alternative designs for the feet of your screen. The size of the feet may have to be adjusted to suit the overall size of the screen. Obviously, small feet on a large screen would be most unserviceable. But in the main the sizes given in Fig. 3 will be found suitable enough for the average-sized firescreen.

Sketch the outline of the feet on to a piece of wood of the correct thickness, and with a coping-saw or a bow-saw, remove the necessary waste-wood. Clean the roughly-sawn edges up with a spokeshave and glasspaper, and then mark out and cut a simple housing joint in the top of each foot. The bottom of the frame must then be glued and screwed (from the underside of the feet) into this housing joint.

Paint or Stain?

The actual construction of your firescreen is now complete. Give the woodwork a final rub down with fine glasspaper and then decide whether to paint or stain and polish it. A painted job will require a flat coat of priming on first and then a final top-coat of hard-gloss or enamel paint. Alternatively,

stain the screen to the required shade, using water or spirit stain, and when dry, brush on a coat or two of white polish or varnish.

As already mentioned, it is a fairly simple matter to enlarge the galleon design at Fig. 1. Use a large sheet of white or brown paper and make the outline rather heavy with charcoal or black crayon, etc. Now place this sheet of paper under the glass and secure it in position with a dab of glue at each corner.

With any odds and ends of ordinary household paint or enamel, carefully paint over the outline showing through the glass. You will soon find that it is absolutely child's play to execute an attractive design on glass in this manner.

A Background

When the handpainted decoration has been completed, remove the pattern from the back of the glass, clean off the glue at the corners, and cut a large sheet of coloured paper or card to size, so that it may serve as a background to the painted design.

You may, if you like, use frosted glass for the panel of the firescreen. It will still be possible to see the outline of your design through the pane, and although the actual painting may be rather more difficult because of the uneven surface of the glass, the fire-

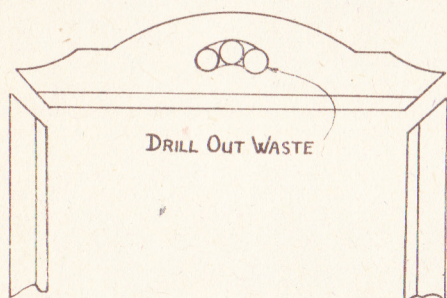


Fig. 2—The top of the screen

front of the fireplace where it is proposed to be used. It does not matter if it happens to be in a rather dilapidated condition. Even if the glass is broken this can easily be renewed. If the loft or lumber-room fails to disgorge a suitable picture-frame have a look round among the second-hand shops. You should be able to pick up a serviceable frame quite cheaply.

Once you have acquired a frame, remove the tacks at the back and lift the pane of glass out. If the woodwork is in a shabby condition clean off all previous paint or stain, using either a paint-stripping solvent or coarse glasspaper. Use a fine glasspaper to produce a smooth finish on the bare wood.

You must now decide whether some form of ornamentation, incorporating a practical little handle, is required at the top of the firescreen. There is no reason why you should not leave the frame as it is, of course. If you would like to give your screen the form of handle shown in Fig. 2 it will be necessary to remove one of the shorter sides of the

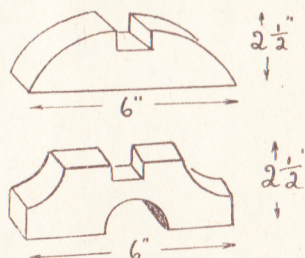


Fig. 3—Alternative designs for the feet

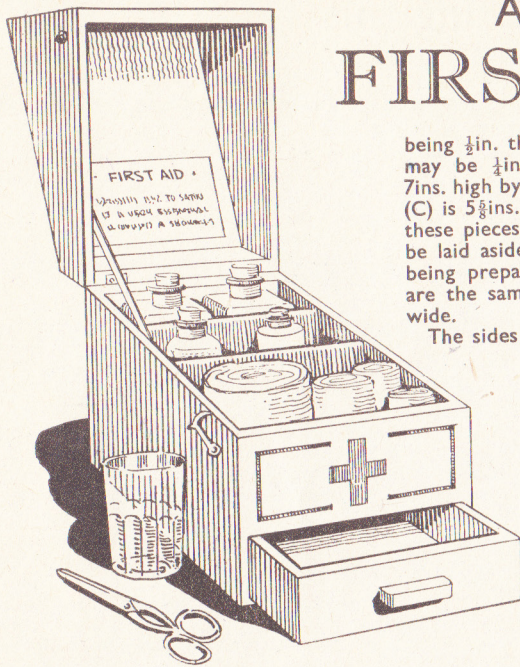
screen will be opaque enough to enable you to dispense with a coloured card backing.

There are, of course, other ways of decorating your firescreen. One method would be to choose a colourful picture and place it inside the frame in the normal manner. This would obviate the necessity for painting the screen. An attractive effect can also be obtained by stretching a piece of embroidered canvas inside the aperture of the frame and tacking it carefully into place. (385)

DYNAMO TIP

If the tread on a cycle dynamo gets broken or lost, the screw on terminal knob of a L.T. accumulator is quite satisfactory.

An unusual but convenient FIRST AID CABINET



being $\frac{1}{2}$ in. thick, while the other pieces may be $\frac{1}{4}$ in. The back (B) measures 7 ins. high by $6\frac{1}{2}$ ins. wide, while the front (C) is $5\frac{5}{8}$ ins. high by $6\frac{1}{2}$ ins. wide. Both these pieces when cut and cleaned may be laid aside while the top and base is being prepared. The latter pieces (A) are the same size, 10 ins. long by 7 ins. wide.

The sides (D) measure 10 ins. long by 7 ins. wide and these may be glued to the floor, flush at the sides, as Fig. 1, then the back (B) and the front (C) can be fitted and fixed in between them. Note in fixing (C) that it must be put in flush with the top surface of the sides which will leave an opening in the lower front for the passage of the drawer, see Figs. 1 and 2.

The top member is next glued on and fret pins driven in to strengthen the joints. The box is thus complete, and all sides should be cleaned up with glasspaper. Rub the joints of the box well down to leave fine clean glued joints.

Forming the Lid

When the above has been done set up a measurement of 4 ins. from the bottom

severed, rub each cut face down on a sheet of glasspaper which has previously been glued to a perfectly flat and even piece of backing board. A pair of $\frac{3}{4}$ in. brass hinges should now be procured and recessed into the back, as shown in Fig. 2. The recesses can be cut down neatly with the fretsaw and the waste wood cleaned out either with a $\frac{1}{4}$ in. chisel or a sharp pointed pocket knife.

Ensure a Close Joint

With care in the fixing of the hinges it should be possible to ensure a perfectly close joint between the lid and the box. There are two partitions in the box, shown as (E) and (F) in Fig. 2. The back one (E) should stand clear $1\frac{3}{4}$ ins. from the inside back of the box and wood $\frac{1}{4}$ in. or $\frac{3}{16}$ in. thick should answer for both partitions.

The front partition should stand away $2\frac{1}{2}$ ins. from its neighbour. Glue and a few $\frac{1}{4}$ in. fine wire nails should form a good fixing for the partitions. Now cut a piece of $\frac{1}{4}$ in. wood $6\frac{1}{2}$ ins. long and $1\frac{3}{8}$ ins. wide as a bearer for the floor (G), this bearer, shown as (G1) in Fig. 2, is glued to the front face of partition (F).

The floor (G) is a piece of $\frac{1}{4}$ in. stuff cut $6\frac{1}{2}$ ins. long and $4\frac{1}{2}$ ins. wide, and it should rest on the bearer (G1) and come flush with its under surface level with the opening in the front of the box. The sectional diagram, Fig. 2, plainly shows its proper position.

To hold the floor firmly to the front (C) of the box, a piece of $\frac{1}{4}$ in. quarter-round beading should be glued in the angle, as seen at (H) in the section.

The Drawer

The neat little drawer to fit the cabinet is clearly shown in the details in Fig. 3. All parts here may be of $\frac{1}{4}$ in. wood excepting the floor (I) which might be of $\frac{1}{8}$ in. stuff. The drawer might be made

up to the measurements given but it will be a good plan to check the exact width and depth from the actual made-up box before any marking out or cutting is commenced.

Note how the main front (K) takes up the full open space at the front, and how

(Continued foot of page 396)

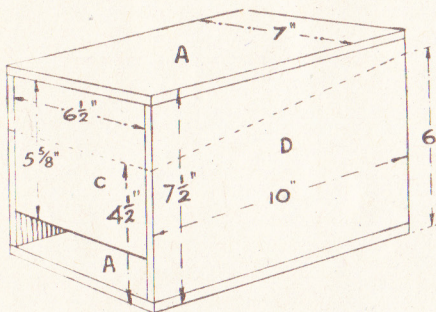


Fig. 1—The main dimensions

with space immediately in front for smaller bottles.

Then to the front of these again sufficient room for rolls of bandages, lint, etc., is provided and for the ever necessary pair of scissors. Below the front compartment there is a useful little drawer for smaller articles and instruments.

It will be noted from the sketch that the lid is hinged along the back of the box, and that a tape or small-link chain is included for holding it in a safe position, while two hooks and eyes are fixed to the side of the cabinet to hold the lid tightly to prevent dust from entering the box.

The construction of the cabinet may be clearly understood from diagrams, Figs. 1 and 2. The front and back pieces of the box are thicker than the rest,

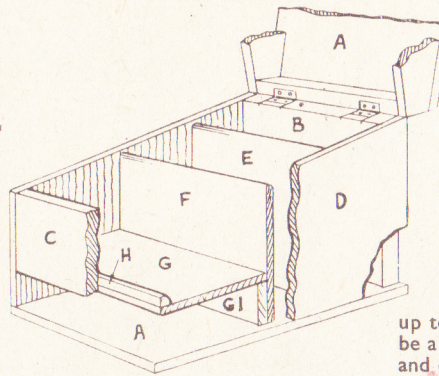


Fig. 2—Showing details of the interior

of the base at the front, and a measurement of 6 ins. at the back of the box, as seen in Fig. 1. Connect up with a line, as shown dotted in this diagram. Do this on both side faces, and then run the line across the back of the box and one across the front of the box so as to make a continuous line all round.

Now grip the larger or bottom section of the box in the bench vice, adding just sufficient pressure to hold it rigid without collapsing the box. Then with a small-tooth tenon saw commence to saw carefully along the line, keeping an eye each side of the box meanwhile to ensure that the guide lines are being strictly followed.

When the two parts have been thus

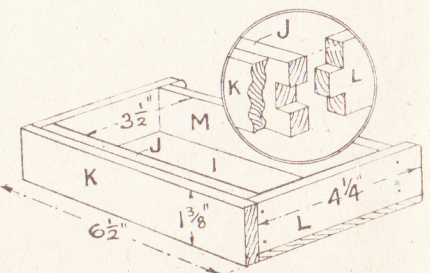


Fig. 3—Layout of the drawer

Anyone handy with tools can make this SHORT LADDER

A SHORT ladder, one about 6ft. long, such as that shown in our illustration Fig. 1, may be found useful for many household jobs and especially round about spring cleaning time. The width of the ladder at the bottom is about 14ins., while at the top there is a wall board 18ins. long and 5ins. wide to distribute the pressure on the wall.

The general arrangement of the parts of the ladder are shown in Fig. 1, while in Fig. 2 a detail of one side is shown, with dotted lines set across, giving the angles to which the steps themselves will be

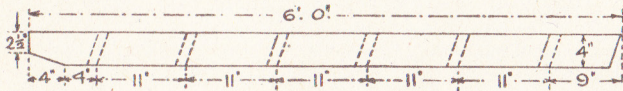


Fig. 2—Detail of one side

fixed. Deal wood may be used throughout 1in. thick, and for the sides two pieces will be wanted 6ft. long by 4ins. wide.

The proper angle at which to cut the top where it fits on to the board is shown in Fig. 2, the measurements given being set out on one piece of the wood and cut and smoothed up, then this piece laid on the second piece and so marked ready for cutting. After cutting each side piece alike, round off the top outer points, as in the detail Fig. 3.

The Two Methods

Now there are two distinct ways of making the steps, and before further progress can be made, it must be decided which of the two methods are going to be carried out.

The treads of the steps may rest upon bearers or fillets of wood screwed to the sides, and be nailed or screwed to them, or they may be let into or housed into the sides. This latter method being shown in Fig. 4.

If the fillets of wood are to be used, cut off twelve pieces 5ins. long by 1 1/2ins. to 2ins. wide by 3/4in. or 1in. thick. The grain of these pieces run lengthways, of course, for strength sake. Fix them as Fig. 5 shows, and trim off neatly each end to the angle of the sides with the tenon saw. The spacing of the steps must be plotted out to the measurements given in Fig. 2, the bearers being placed under the dotted lines given.

Bore two holes in each bearer and countersink the holes and screw them on securely. Care must be taken in preparing the second side to get all the bearers in the proper positions and exactly opposite those already fixed. The two sides should be placed together and the positions of all the steps and

bearers ticked off in pencil across each side. There should thus be a right and a left hand side made up complete and ready for the treads to be nailed on. For the treads cut off six pieces 12 1/2ins. long and 5ins. wide and smooth up the cut ends and round off slightly one edge—the front.

It only remains now to lay the steps on the bearers and bore holes slightly sloping, as shown in the circle in detail Fig. 5, and drive in two long nails to each end.

The top board is shown in Fig. 6 and is 18ins. long and 5ins. wide. Bore the holes in a slightly sloping manner and fix with long nails or screws. If it is decided to house the steps into the sides, a small-tooth tenon saw should be used

in making the cuts 1/4in. deep, the interior waste wood being cleaned away with a chisel.

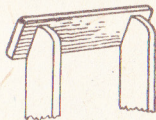
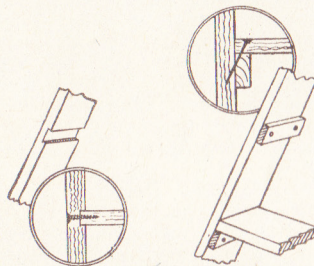


Fig. 3—The top



Figs. 4 and 5—Two methods of fixing the treads

Be sure and get the cleaned-out surface smooth, so that the steps will fit closely and evenly. Place all the treads in one of the sides, gently tapping them home with a mallet, and then place on the second side, holding a square piece of wood over where the treads come before using the mallet again. Bore and countersink two holes for each end of the

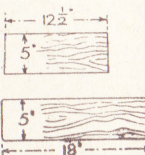


Fig. 6—Tread and top board measurements

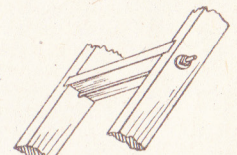


Fig. 7—Stiffening the top step

through a piece of 1/4in. iron rod which has been previously tapped at both ends to take nuts for screwing up and thus holding the steps well together.

Put on an iron washer next to the wood, and after adding the nuts, file away the projecting ends of the rod and make all smooth. If it is decided to paint the woodwork, a coat of red lead priming should first be given, any knots that should occur in the wood being first given a coat of knotting varnish. Finish off with two coats of paint. Do not, however, paint the immediate treads of the steps, as this would be inclined to make them slippery.

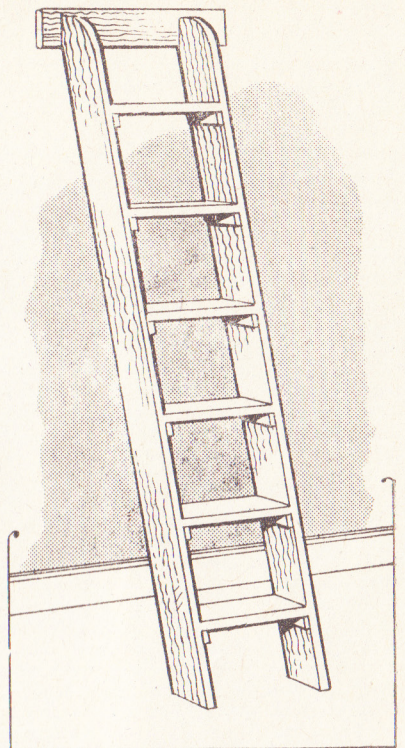


Fig. 1—The completed ladder, showing the general arrangement of the parts

treads and drive in stout nails.

Stiffening the Steps

The board at the top will be fixed as previously mentioned, and to stiffen up the steps, some may decide, in fact, it is to be strongly recommended, that an iron rod be placed beneath the top step and the lowermost step, as in Fig. 7. To do this, bore a 1/4in. hole so that it comes immediately under the step, then pass

Designs are given
free with every other
issue but not with
back numbers of
Hobbies

This article will help you to IMPROVE YOUR PHOTOGRAPHY

DOUBTLESS there have been many thousands of resolutions made and broken this year—some before they could possibly have been put into practice. Anyway, this is not concerned so much with the making of resolutions as with the good which might be derived from the thought behind the suggested idea of resolving to do something that will definitely lead to improvement or, inversely, to refrain from doing that 'something' if by so doing one can avoid a certain number of errors or mistakes.

Visit an Exhibition

You will remember that it has often been suggested in these articles that amateur photographers should, whenever possible, pay a visit to a photographic exhibition. There is an extraordinary amount of benefit to be gained by seeing the work of others, and competitive work at that. You can, by using your own judgment and comparing one print with another, learn a lot and very soon find yourself criticising some of the exhibits.

In other words, picking out faults or errors which in your estimation rather spoil the print. If the opportunity presents itself of being accompanied by an experienced photographer, you will, undoubtedly, be given many illustrations of real practical value to yourself, and, incidentally, it is possible that he may be able to demonstrate that some of your criticisms are not so justified as you may think.

Commonplace

A short time ago I was invited to visit an exhibition of photographs entered for a Town Corporation Photographic Competition. The rules were drawn up in the usual manner and to encourage as many entries as possible, there were few restrictions and a goodly array of prizes. The exhibition was well arranged in a good hall and every entry exhibited. But, and this is what so often happens in these competitions, so many folk had taken the same scene or object that those particular subjects became commonplace and failed to catch the judge's eye.

The prints that secured the big prizes were those which displayed originality, good technique and careful manipulation; characteristics which absolutely commanded attention as compared with the majority of other entries.

Let us apply this lesson or idea of exhibitions to our work of last year. Get every one of your prints and negatives and display them in a room and in such a manner that they can each be very carefully scrutinised. Then invite some of your friends to come along and, if possible, include two or three whom you know do all their own processing,

including picture-making, i.e. enlarging. Invite criticisms and do not take offence at what may be said. One friend may suggest that you ought to have done 'so and so', while another one would disagree about this or that object being in the attempt.

It is just likely that an argument will be started as to the rights and wrongs of the use of such and such a gadget for securing certain effects. Take all that may be said in good part. Remember, you are getting the other chaps' ideas and points of view and you cannot possibly help getting a few valuable tips; but this does not mean that you have got to sink your own pet theories. If you find that one of these is being challenged by your friends, then it is up to you to hit back and to draw from their experiences something that conclusively proves that you are on the wrong track. Only then is it time for you to accept their opinions and to modify your own.

Word of Warning

A word of warning is advisable at this point. You may find that some of the criticisms are too severe. They are destructive rather than constructive and you feel very depressed and disappointed. Even your own personal feeling about some of the results is by no means good because you are convinced that you could have made a better job, —if.

Yes, that is so. There is no doubt that most results would be improved 'IF' we could take the shot again but do not be discouraged by any arguments that may be put forward. Every amateur makes failures and produces dud results. Rather let us all learn something from those mistakes.

Now that you have managed to collect all or most of your prints from the year's collection of negatives, I would most earnestly ask you to arrange them in some sort of order in an album. This may sound like another big expense in connection with a hobby which is, perhaps, not the only one and one on which you may not wish to spend too much. Well, the author does not advocate spending unless there is a jolly good return for the money assured.

There is a good return if the album is used methodically. Dates of the taking, the name of the place, the brand of film and, in fact, every little bit of data that you can rake up about the exposure should be mentioned on the back of the print or very close to it in the album.

Albums are expensive if you intend to purchase a first class one, but if it is not possible to get a ready-made one at a price to suit the pocket, I would suggest making one on the following lines:—In the industrial section of any town you can usually find a stationer specialising in office equipment, and included in this will be found various forms of loose-leaf

covers, some made of very stiff card, others not so stiff and still others of more or less flimsy but fairly substantial material. These covers are provided with some sort of mechanical device for holding the leaves firmly in position. Sometimes it is a strong clip or grip. Other forms consist of two or three hinged rings fixed to a metal bar on one of the covers. The ring divides so as to allow a perforated sheet to fall into position on the ring. Instead of rings, other sets of covers are provided with metal pillars which again are for use with perforated sheets. From these descriptions of a few types of covers you will have gathered what is in mind.

The paper restrictions make it very difficult to obtain good quality sheets suitable for use as album sheets, but first try some of the photographic dealers in your neighbourhood. If unsuccessful, then you must fall back on a temporary measure and secure some fairly thick good class writing sheets from the stationer or some artists' sheets from the Artists' shop. A good make is Whatman's and this can be obtained in fairly large sheets so as to enable you to cut to the size of the covers.

If you can get covers about 12ins. by 10ins. do so, but if not, then somewhere about 10ins. by 8ins. should answer satisfactorily. Anyone with a leather punching machine can make the necessary holes in the sheets and these must, of course, coincide with the pillars or rings of the covers. The total cost of such an album should be only a few shillings, including a number of sheets, and with such a book you will be able to retain for many years your results of 1950 and possibly another year or two.

Fastening the Prints

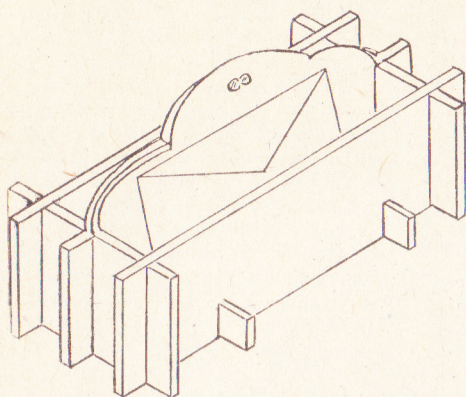
If the prints are pasted or fastened with corners on the left-hand page of the opening, the data, to which reference was made earlier on in this article, could be written on the right-hand page and opposite the print.

Some few years ago the author went on a most enjoyable holiday with a party of friends. Each day he made a brief report of any outstanding happening and on returning home he got a loose-leaf book, similar to that described. He pasted a whole collection of 'snaps' on the one side of each sheet and on the other side wrote a complete and humorous account of the holiday. You can do this, and you will be surprised how interesting that record will become as the years pass on.

There is another piece of advice which I endeavour to pass on to all my amateur friends and which I invariably include in photographic talks or lectures. It is this:—If you have a print which you feel is really good both pictorially and

(Continued foot of page 395)

A few odd pieces can make an attractive PLASTIC LETTER RACK



LOOSE envelopes and postcards tend to stray in the desk or office bureau. This delightful and cheap-to-make Perspex model is designed to keep them all together, and ready for use.

The holder is portable and very strong, the material is durable and will not break if dropped, but the construction of the model requires careful and patient craftsmanship.

Pieces Needed

You will need one piece of Perspex 7ins. long and 5ins. wide, two pieces 7ins. long and 2ins. wide, two more 3½ins. long and ½in. wide. All the pieces are 3mm. thick. Buy machine-cut plastic, ready trued-up, so as to save yourself a great deal of draw filing in the first place. Then cover each piece with gummed white paper, and trim the edges to the contour of the Perspex.

The model is built up on the principle of long cross-halved joints, as shown in Fig. 1. Set out the central piece of the holder, the one 7ins. by 5ins., and carefully fretsaw along the curves. Then cut out the two holes with a No. 8 drill, and file them with a 3in. half-round

smooth file, to make the finger-and-thumb grip of the model.

There are four slots, each 3mm. wide for the cross-halved joints in this central piece. The outside slots are 1in. long from the base edge, but the inside ones are ½in. long from the same line. Now set out the slots on the two pieces 7ins. by 2ins. in exactly the same way.

The best way to remove the waste plastic in these slots is to drill a hole at the end of the slot with a No. 32 drill, and then fretsaw slightly inside the shoulder lines of the slot. True-up the shape of the slot with a needle file, and a 3in. flat file.

Remember these slots on the long pieces are removed from the base edge upwards.

Now the slots made on the short cross pieces 3½ins. by 2ins. are cut from the upper edges downwards, as shown in Fig. 1. They must correspond in length exactly with the slots already shaped in the 7in. lengths of Perspex.

When all the cross-halved joints are completed, assemble the pieces for a trial fit. After corrections have been made, dismantle the model, smooth all cut edges with No. 1 and No. 00 glasspaper, and then wash off the white paper gummed to the plastic.

Now all that remains is to fuse these pieces together to make a permanent fitting. To do this, brush the inside faces

of the slots with a No. 3 new Reeves paint brush charged with concentrated (glacial) acetic acid. First, fuse the short cross pieces to the long central piece of the model. Then fuse the other parts, and leave the model for twenty-four hours. At the end of this time the fusion will be complete, and the model ready for finishing.

Polishing

The very fascinating cut-glass finish effect can be obtained by rubbing all faces with a piece of old sock wet with Silvo. When the Silvo has dried as a white film of powder on the plastic, rub it away very vigorously with some clean silk.

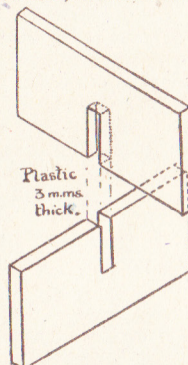


Fig. 1—Type of joints

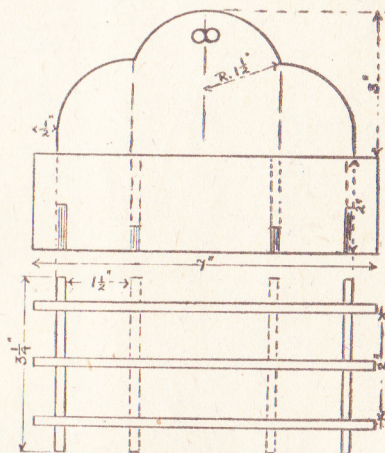


Fig. 2—Plan and side view

Your finished model will never fail to draw admiration from those who see you use it. (384)

Improve Your Photography—(Continued from page 394)

technically, and you like to show it to your friends who in turn are inclined to compliment you on the result, why not make an enlargement of it? If you have not got an enlarger, send the negative to a good class dealer or professional photographer for him to make a 12ins. by 10ins. or a 10ins. by 8ins. print. Mount it yourself so that it will fit any frame that may be out of use temporarily, and hang the picture on the wall of a room which is in constant use by you. Now, if you can live with that framed picture for, say, four or five weeks, it is good, but if each time it catches your eye you seem to feel that it is lacking in something, then there is something wrong with it and it is up to you to find the fault.

Now what is the purport of this business of visiting Exhibitions; making

an exhibition of your own prints and inviting criticisms; placing all your 1950 results in an album with a lot of data accompanying each print; and having an enlargement made and framed and after a few weeks removing it from the dining room wall?

Here is the answer to your query. You have a camera and have evinced a certain amount of interest in the hobby of photography, and, let us assume, are fairly pleased with the results so far attained. But you are not quite sure whether they are really all right. You somehow feel that you would like to have a little more advice and to be shown where you are not doing the right thing.

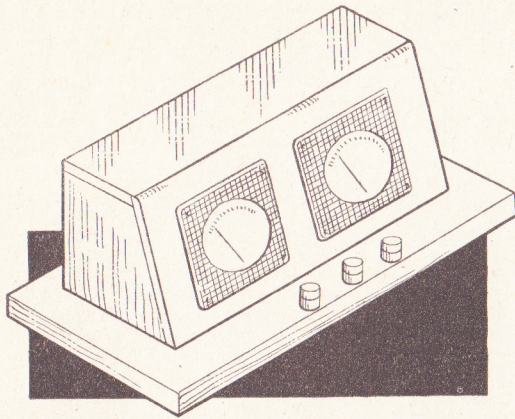
Yes, it was the same about your cricket, tennis or golf. You felt fairly confident—but. And it was that 'but'

that caused you to go to the Professional and have a lesson and that lesson improved your play so much that you enjoyed the game 100 per cent. more than you used to.

Do not be Haphazard

Do not treat your camera work haphazardly. Try to take a deeper interest in the hobby by more concentration before making an exposure. And above all else do make a special effort to see what other fellows are producing. The keen amateur photographer sees much more on his jaunts into the country and when on holiday than the chap who is without a camera. And he can live those happy days over and over again, in fact, every time that album is opened. (392)

The instruments are easily obtainable for this UNIVERSAL TEST METER



THIS simple stand, comprising voltmeter and ammeter, forms a very useful accessory for the hobbyist. The instruments themselves can now be obtained very cheaply from most stores specialising in surplus goods; a reliable accurate ammeter or voltmeter not costing more than a few shillings each.

Choose a popular range according to the type of electrical measurement you are most likely to have to carry out. A voltmeter reading from 0.5 volts will cover most possibilities where ordinary dry battery power is used (except, of course, radio high tension batteries). A similar range for the ammeter—0.5 amps—also covers most useful needs.

The two instruments are housed side by side on the sloping face of a small cabinet. Construction is shown in the diagrams. Material thickness is relatively unimportant, $\frac{1}{4}$ in. plywood or similar being quite satisfactory and makes a robust unit. The base could be of slightly thicker material.

All joints are simple butt joints, assembled with small screws or panel pins. The top is fitted last when the whole can be sanded down perfectly smooth and the corners and edges rounded off.

Two circles of $2\frac{1}{2}$ ins. diameter are fretted out of the front panel to accommodate the instruments. These are then located by small screws through each of the four corner holes into the front face of the cabinet. Wiring to the three front terminals is simple, the centre terminal being the common negative.

Whilst the actual wiring is not shown on the assembly drawings, it is recommended that three holes be drilled in the base under the main body of the cabinet and the wires

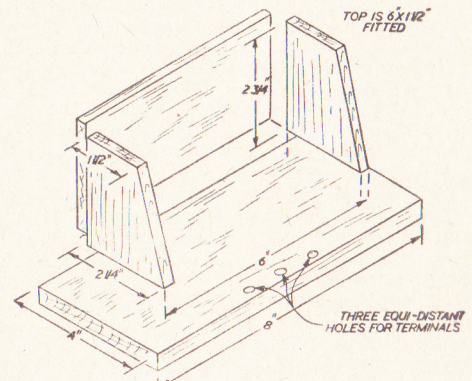
fed through these in grooves cut in the underside of the base to the terminals themselves. This will make for a neater job than external wiring.

To the terminals should be attached a three lead flex or cord with the free ends appropriately marked with tags. One tag, the wire going to the centre terminal, will be marked 'VE', the other terminals simply 'AMPS' and 'VOLTS', respectively. One has only then to select the appropriate two leads for test readings. All the leads being together, it is a matter of seconds only to obtain readings in both 'volts' and 'amps'. In the normal way several minutes

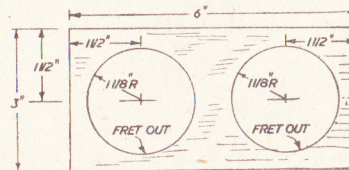
could be wasted in connecting up the two instruments separately.

Home electricians might care to extend the use of this instrument by coupling up various shunts and series resistances to extend the range of the original voltmeter and ammeter. A whole row of terminals could then be used corresponding, say, to 0.1 amp, 0.5 amps, 0.10 amps, and so on, and similarly for the voltmeter. It is relatively simple to calculate the values of the resistances involved and work out the appropriate wiring. All this can be accommodated within the cabinet itself.

(369)

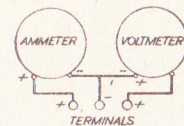


Dimensions of the cabinet



FRONT FROM $\frac{1}{4}$ " MATERIAL

Details of the front panel



First Aid Cabinet—(continued from page 392)

the false front (J) goes inside it with the sides (L) of the drawer nailed to it. It would be well if the lock joint, shown in the circled diagram in Fig. 3, were introduced here, as a much stronger connection would result. It means only a little more careful marking and cutting and is well worth the extra time

and trouble it would take.

Note, too, how the back (M) of the drawer stands in a little way from the back ends of the sides. This is done again for strength, the small nails having plenty of surrounding wood to support them. Note the position of the floor in relation to the back (J) and the sides.

A simple block handle may be made for the drawer, as shown in the sketch, and glued on, and with a screw run through from the inside. Rub all surfaces down on the glasspaper board, referred to previously, to get a true and even fit.

The matter of finish to the cabinet is largely one of individual taste, but it

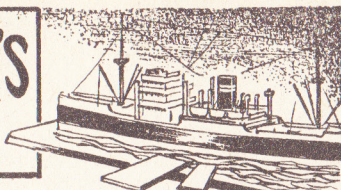
seems generally recognized that any first-aid cabinet should be painted white. This being so, we suggest that the outside surfaces be given a final cleaning with fine glasspaper and a coat of lead priming paint put on.

When this has hardened rub it down again with fine paper and then add one or two coats of white paint or enamel. The closing edges of the lid and box should be coated, but the inside of the box should not be painted at all. It might, perhaps, be varnished. The cross and border lines on the front above the drawer should be painted bright red. A pair of hooks and eyes should be added.

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The SHIP MODELLER'S Corner



ALTHOUGH the accession of Elizabeth to the throne in 1558 A.D. resulted in increased activity in the designing and building of ships of war, there is a great shortage of accurate details of individual ships.

Contemporary pictures are practically non-existent and we have only such details as a mere statement of tonnage and the number of men forming the crew.

Our best source of information lies in a series of manuscripts described by Samuel Pepys as 'Fragments of Ancient Shipwrightry' which, while the draughts and plans do not represent any particular ship, gives accurate details of the designs, methods of construction and decoration in vogue at this period.

These draughts show that the vessels were 'galleon' built, with long beak, forecastle well back from the stem.

In most warships the upper works consisted of forecastle, quarter-deck and poop and in the largest vessels, forecastle, half-deck, quarter-deck and poop.

The 'sheer' line, that is the upward curve of the hull towards the bow and stern, was very marked, but it is not generally known that this 'sheer' affected the exterior appearance of the hull only; it was defined by the wales that ran along the outside of the hull and which added strength to the hull.

This is easily understood when we consider that if the sheer line of a ship of this period were followed by the line of the decks, the stern decks would have been at an angle of slope impossible to stand upon.

'Tumble-home' was also very marked, due to the upper decks being narrower than the hull at the waterline, this was due to the desire to obtain stability, especially when working the guns.

At times the upper decks amidships were cut half the breadth of the hull at waterline level amidships.

Early in this 16th century portholes were invented and the bulkheads shutting off the upper decks from the waist were also pierced for small guns, thus allowing the gunners to 'rake' the waist when boarded by an enemy crew.

The waist of a galleon was often devoid of bulwarks and during battle it was the custom to protect the waist with 'pavasses' either of thin plank painted with armorial bearings, or of canvas (two bolts of canvas 3½ ft. deep) gaily painted in red, yellow, green and white.

Bowsprits at this period were not placed on the centre line of the hull, but towards the starboard side, about the width of the foremast off centre.

Another custom was the fitting of 'Sheerhooks', heavy steel sickles, at the ends of the yard-arms; the purpose of

this custom was the cutting of enemy rigging when grappled alongside an opposing vessel.

Most large warships carried three ship's boats, stowed on chocks in the waist.

Heraldic designs on sails, which artists depicting ships of this period

Some Notes on Elizabethan Warships

By 'Whipstaff'

seem to delight in died out of use as far as Royal ships were concerned, by the end of the 16th century, and figure-heads, when used, were usually confined to the Dragon or Lion. It is unlikely that the 'Golden Hind' for example, ever carried the 'Hind' figurehead so often shown on models made to represent this famous vessel.

The colouring of the period was carried out above the main wale in geometrical designs mainly using the Tudor colours of white and green, red was also popular.

During Elizabeth's reign yellow, purple and to a much less extent blue were also used.

The stern usually carried the Royal Arms painted in full Heraldic colours, occasionally also carved in relief. Painted designs in general followed the designs used in the internal decoration of houses of the period and when they were not simple geometrical designs, represented panels, arches and pillars.

Below the main wale to the water-

line on the hull proper was not painted, but 'paid' with a mixture of oil, turpentine and resin. Below the waterline was usually white.

All wales were painted black.

We have Sir Walter Raleigh as authority for the information that at this period separate top-masts were introduced, thus enabling the top-mast to be 'struck' or lowered.

He also mentions the introduction of bonnets, drabbers, and studding sails, the introduction of 'weighing the anchor' by capstan and the introduction of chain-pumps.

To obtain extra realism why not arm your little model in the customary manner of the period? Namely, in large ships like the 'Ark Royal', the lower gun deck would be armed with 'culverins', the main gun deck with demi-culverins, and the waist and upper works with sakers.

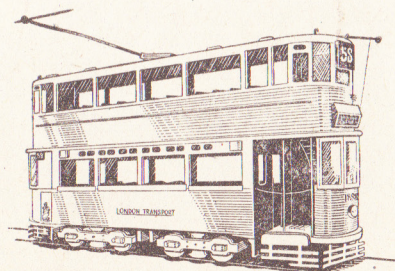
If the size of your model allows it without being overscale, you can include swivel guns on the rails.

In a later article guns of this period, how to model them to scale and mount them will be dealt with fully.

Another item on which many models of this period fail is in the dead-eyes, most are rigged with round dead-eyes with one hole in the centre, the correct dead-eye of the period, which can be made in several ways, was heart-shaped, with three holes. Methods of making and setting up will be dealt with in the near future.

In these few notes designed to help you to obtain more realism in your model, there is nothing that even the beginner cannot use to improve his little ship, none of the suggested improvements are difficult to obtain, only requiring a few home-made tools and patience.

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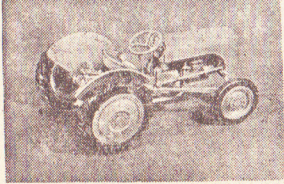
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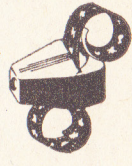


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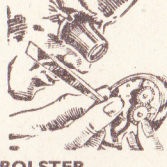
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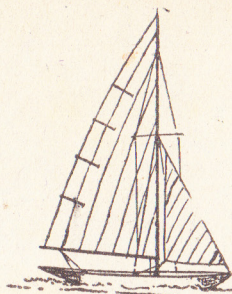
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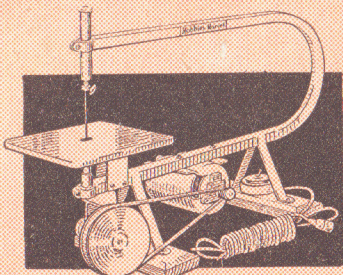
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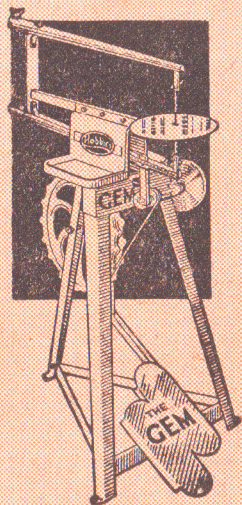
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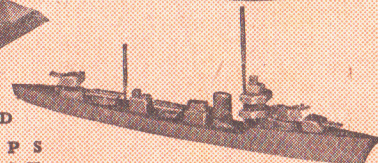
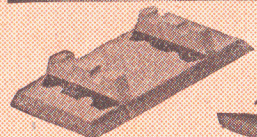
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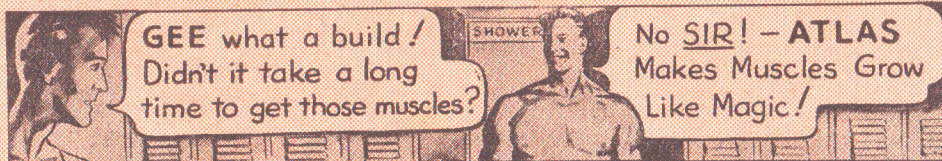
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